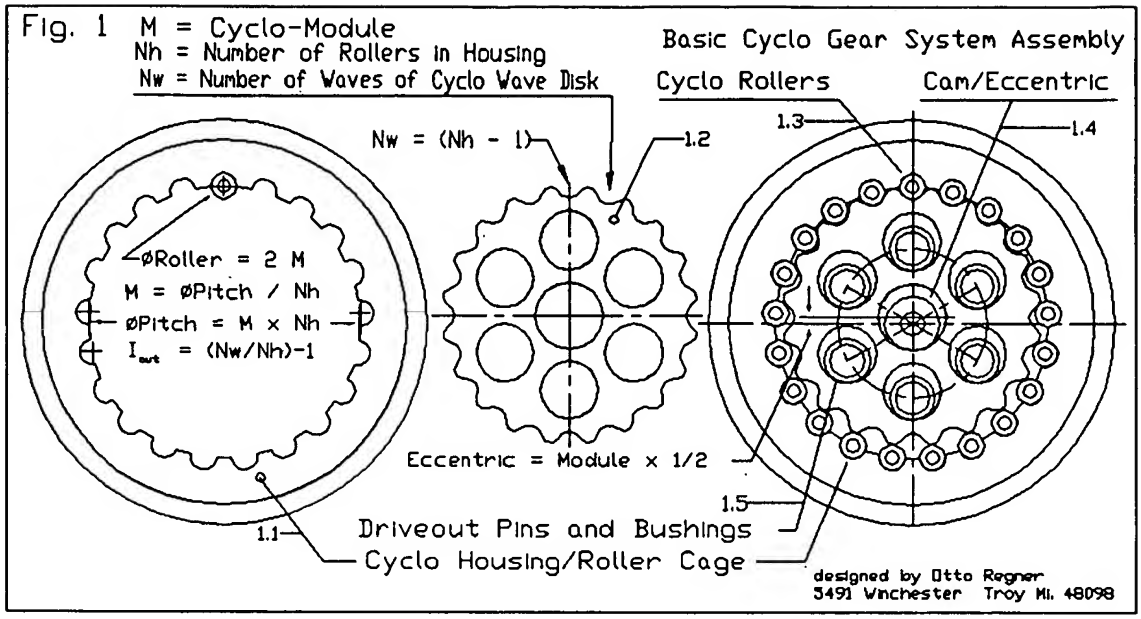
Fig. 1 M = Cyclo-Module
Nh = Number of Rollers in Housing
Nw = Number of Waves of Cyclo Wave Disk
Basic Cyclo Gear System Assembly
Cyclo Rollers
Cam/Eccentric
Nw = (Nh - 1)
1.2
1.3
1.4
ØRoller = 2 M
M = ØPitch / Nh
ØPitch = M x Nh
I_{act} = (Nw/Nh)-1
Eccentric = Module x 1/2
1.5
1.1
Driveout Pins and Bushings
Cyclo Housing/Roller Cage
designed by Otto Regner
5491 Winchester Troy Mi. 48098

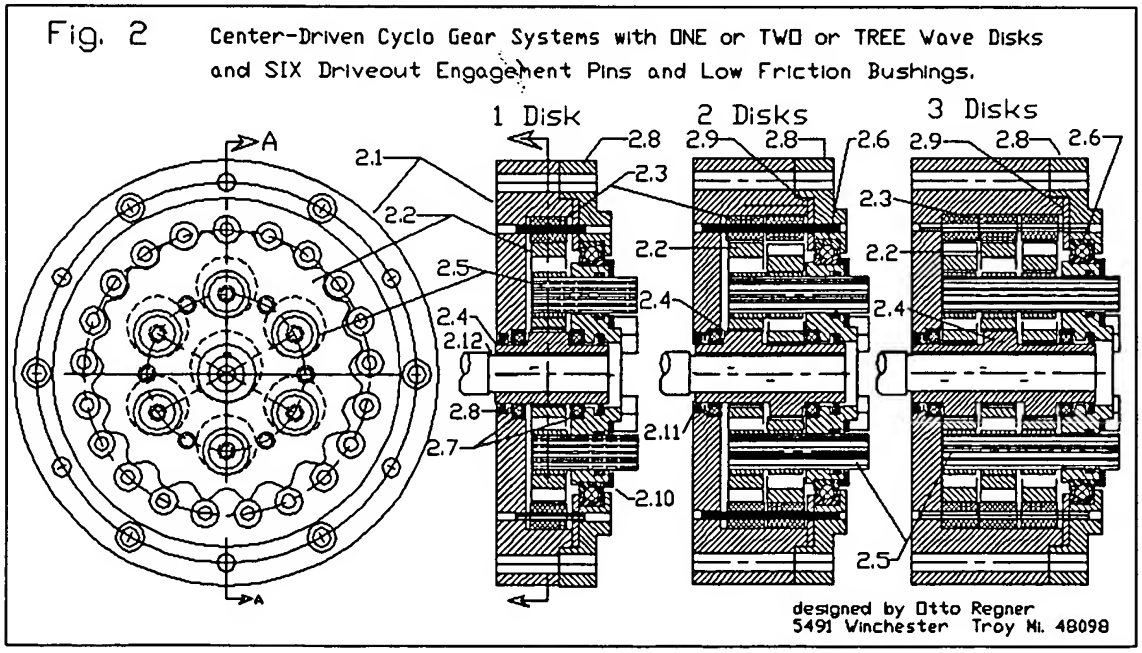
Fig. 2 Center-Driven Cyclo Gear Systems with ONE or TWO or TREE Wave Disks
and SIX Driveout Engagement Pins and Low Friction Bushings.
1 Disk
2 Disks
3 Disks
A
2.1
2.2
2.5
2.4
2.12
2.8
2.7
2.10
2.3
2.9
2.6
2.11
designed by Otto Regner
5491 Winchester Troy Mi. 48098

Fig. 3 Precision Cyclo Gear System with Three Camshafts, Three Wave Disks, Three Planet Gears, Three Connecting Torque Rods and One Sun Gear, and Hollow Center.

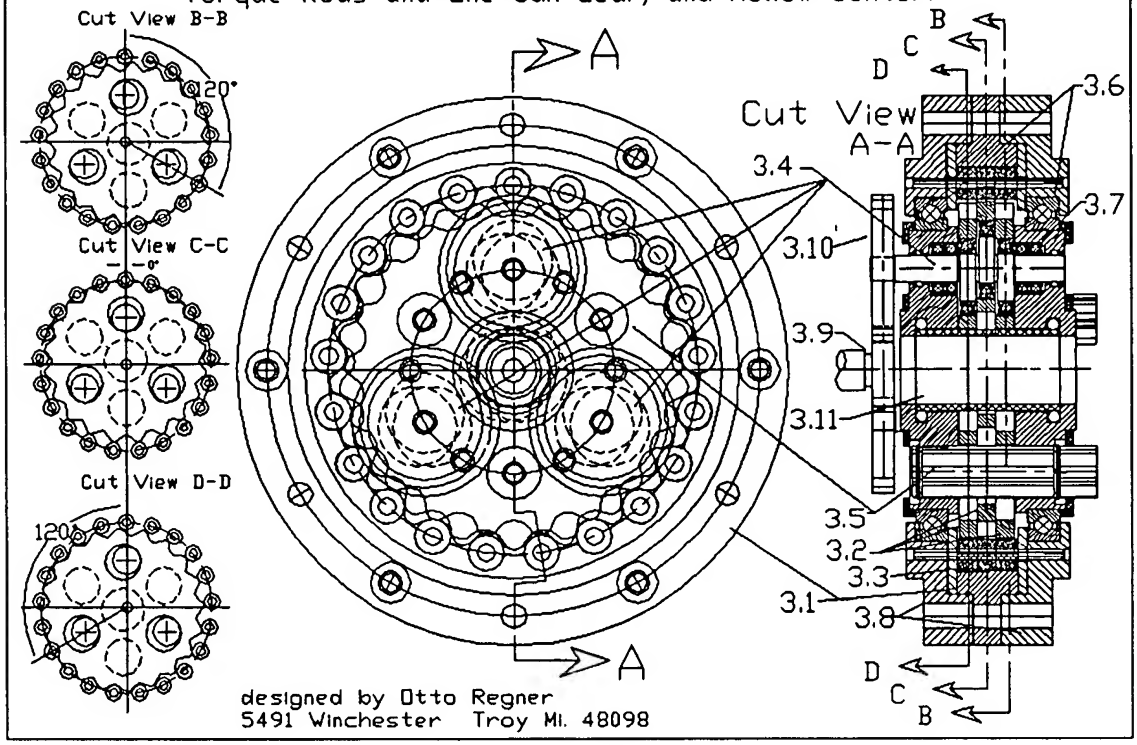

Fig. 4 Heavy-Duty Precision Cyclo Gear System with Three Camshafts, Three Torque Rods, Three Disks, Three Planet Gears, One Center or One Outer-Centered Peripheral Sun Gear, and Hollow Center Hole

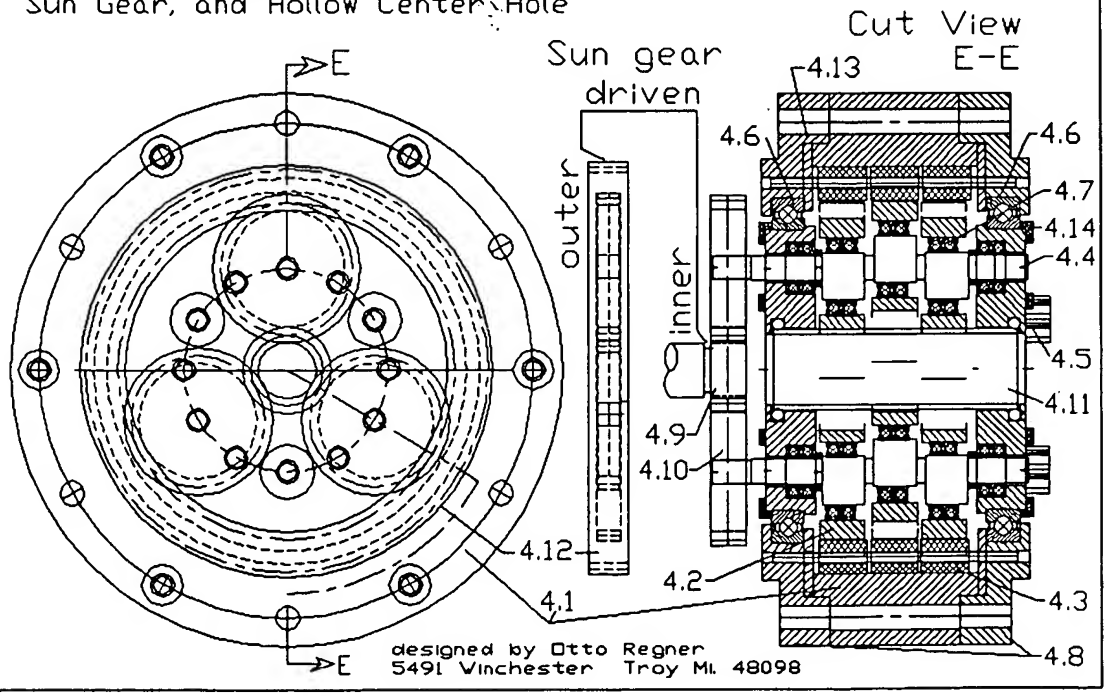

Fig. 5 Center-Driven Cyclo Integrated Gear-Axes with 1 or 2 or 3 Disks, and Six Torque Bars with Low-Friction Bushings, and Pre-Loaded Cross-Roller Bearings.

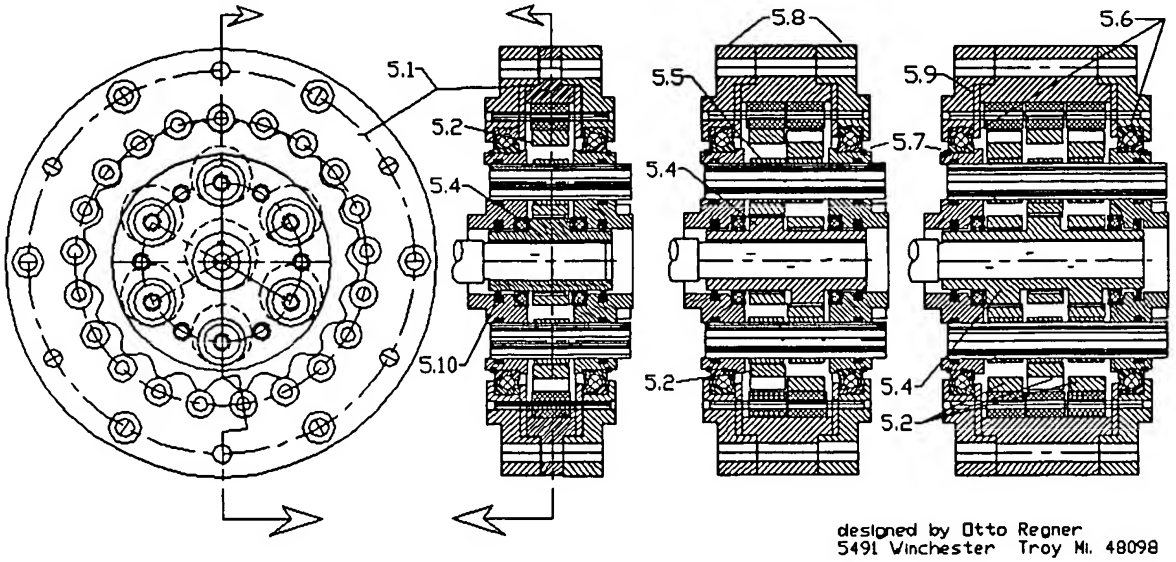

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Fig. 6 ONE DISK ABSOLUTE ANGULAR ROTATION ENCODER USING LOW-POWER INFRA RED LED, TTL UP/DOWN COUNTER WITH SHIFT REGISTER AND LOCAL RECHARGEABLE BATTERY POWER BACKUP

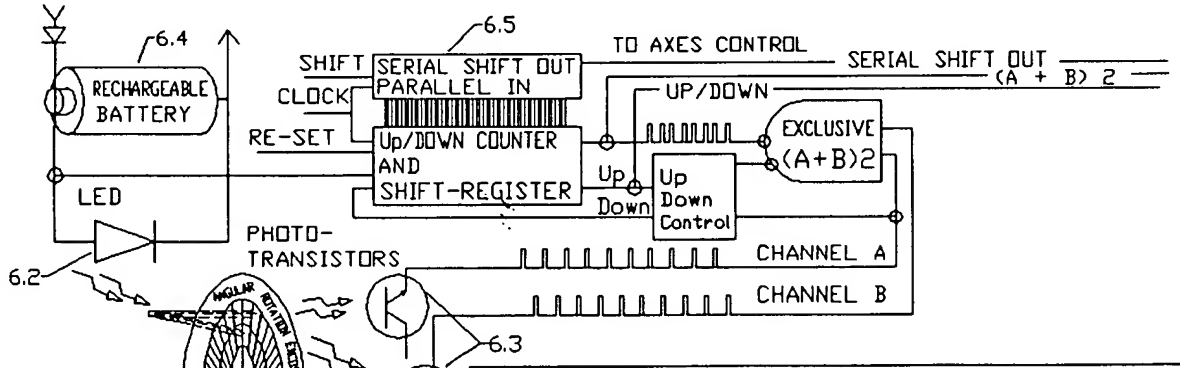

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Fig. 7 FREQUENCY SHIFT AND SERVO FILTER TO CONTROL CRITICAL FREQUENCY VIBRATION